

AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior versions and listings of claims in the present application.

1. (Currently Amended) An image heating apparatus comprising:

a rotatable heat-producing medium that produces heat by action of magnetic flux;

a magnetic flux generator positioned proximate to a portion of a first peripheral surface of said heat-producing medium and generates magnetic flux that acts upon said heat-producing medium;

a magnetic flux adjuster that is rotatably positioned ~~proximate to~~ on a second peripheral surface of said heat-producing medium, opposite the first peripheral surface, and that has a paper passage area magnetic flux adjustment unit that ~~adjusts~~ causes a magnitude of magnetic flux acting upon a paper passage area of said heat-producing medium to vary depending upon whether the paper passage area magnetic flux adjustment unit is positioned close to and facing the magnetic flux generator or is positioned far from the magnetic flux generator, and a paper non-passage area magnetic flux adjustment unit~~[[,]]~~ with a that has a different rotational phase from said paper passage area magnetic flux adjustment unit~~[[,]]~~ and that adjusts causes a magnitude of magnetic flux acting upon a paper non-passage area of said heat-producing medium~~[[,]]~~ said magnetic flux adjuster continuously rotating throughout to vary depending upon whether the paper non-passage area magnetic flux adjustment unit is positioned close to and facing the magnetic flux generator or is positioned far from the magnetic flux generator, and that rotates during a fixing operation for each sheet of recording paper and periodically changes

the magnitude of magnetic flux acting upon said heat producing medium at different timings between the paper passage area and the paper non-passage area; and

a synchronization controller that periodically controls, for each sheet of recording paper, a timing of magnetic flux generation by said magnetic flux generator in synchronization with rotational phases of the magnetic flux adjustment units of said magnetic flux adjuster[[]],

wherein a calorific value distribution across a width of the heat-producing medium is adjusted by changing the timing of magnetic flux generation that is periodically controlled by the synchronization controller and by changing a spatial distribution of the magnetic flux acting upon the heat-producing medium.

2. (Previously Presented) The image heating apparatus according to claim 1, wherein a rotational speed of said magnetic flux adjuster is different from a rotational speed of said heat-producing medium.

3. (Previously Presented) The image heating apparatus according to claim 1, wherein said magnetic flux adjuster rotates an integral number of times while a predetermined part of said heat-producing medium passes through an area opposite said magnetic flux generator.

4. (Previously Presented) The image heating apparatus according to claim 1, wherein a direction of rotation of said magnetic flux adjuster is opposite to a direction of rotation of said heat-producing medium.

5. (Previously Presented) The image heating apparatus according to claim 1, wherein a downstream end of an area of said magnetic flux adjuster opposite said magnetic flux generator

rotates at a speed greater than or equal to the speed of movement up to an upstream end on an opposite side while an arbitrary part of said heat-producing medium enters and passes through an area opposite said magnetic flux generator.

6. (Previously Presented) The image heating apparatus according to claim 1, wherein said magnetic flux adjuster has a configuration in which said paper passage area magnetic flux adjustment unit and said paper non-passage area magnetic flux adjustment unit are provided on a peripheral surface of a cylindrical body.

7. (Previously Presented) The image heating apparatus according to claim 6, wherein a plurality of said paper non-passage area magnetic flux adjustment units are located alternately in a circumferential direction of a center part and both end parts of a surface of said magnetic flux adjuster.

8. (Previously Presented) The image heating apparatus according to claim 6, wherein an upstream end of said paper non-passage area magnetic flux adjustment unit is positioned in a center part of said magnetic flux adjuster and downstream ends of said paper non-passage area magnetic flux adjustment unit are positioned at both ends of said magnetic flux adjuster.

9. (Previously Presented) The image heating apparatus according to claim 8, wherein a plurality of said paper non-passage area magnetic flux adjustment units are located alternately in a circumferential direction of a surface of said magnetic flux adjuster.

10. (Canceled)

11. (Canceled)

12. (Previously Presented) An image heating apparatus comprising:

a rotatable heat-producing medium that produces heat by action of magnetic flux;

a magnetic flux generator that is positioned proximate to a first peripheral surface of said heat-producing medium and generates magnetic flux that acts upon said heat-producing medium;

a temperature controller that controls said magnetic flux generator and maintains a temperature of a surface of said heat-producing medium at a predetermined temperature; and

a calorific value distribution adjuster that selectively adjusts magnetic flux acting upon a predetermined area of said heat-producing medium and equalizes a calorific value distribution of said heat-producing medium;

wherein said calorific value distribution adjuster has an electrical conductor opposite said magnetic flux generator.

13. (Previously Presented) An image heating apparatus comprising:

a rotatable heat-producing medium that produces heat by action of magnetic flux;

a magnetic flux generator that is positioned proximate to a first peripheral surface of said heat-producing medium and generates magnetic flux that acts upon said heat-producing medium;

a temperature controller that controls said magnetic flux generator and maintains a temperature of a surface of said heat-producing medium at a predetermined temperature; and

a calorific value distribution adjuster that selectively adjusts magnetic flux acting upon a predetermined area of said heat-producing medium and equalizes a calorific value distribution of said heat-producing medium;

wherein said calorific value distribution adjuster includes a suppression member that is linked to magnetic flux generated by said magnetic flux generator.

14. (Previously Presented) An image forming apparatus comprising:

the image heating apparatus according to claim 1;

a first temperature sensor that detects a temperature of a paper passage area of said heat-producing medium and sends a heat-producing medium paper passage area detected temperature signal to said synchronization controller; and

a second temperature sensor that detects a temperature of a paper non-passage area of said heat-producing medium and sends a heat-producing medium paper non-passage area detected temperature signal to said synchronization controller;

wherein said synchronization controller controls a timing of magnetic flux generation by said magnetic flux generator in synchronization with respective rotational phases of the magnetic flux adjustment units of said magnetic flux adjuster based on a detected temperature signal from said second temperature sensor.

15. (Previously Presented) An image forming apparatus comprising:

an image heating apparatus comprising:

a rotatable heat-producing medium that produces heat by action of magnetic flux;

a magnetic flux generator that is positioned proximate to a first peripheral surface of said heat-producing medium and generates magnetic flux that acts upon said heat-producing medium;

a temperature controller that controls said magnetic flux generator and maintains a temperature of a surface of said heat-producing medium at a predetermined temperature; and

a calorific value distribution adjuster that selectively adjusts magnetic flux acting upon a predetermined area of said heat-producing medium and equalizes a calorific value distribution of said heat-producing medium;

wherein said calorific value distribution adjuster has a magnetic body opposite said magnetic flux generator;

a first temperature sensor that detects a temperature of a paper passage area of said heat-producing medium and sends a heat-producing medium paper passage area detected temperature signal to said temperature controller; and

a second temperature sensor that detects a temperature of a paper non-passage area of said heat-producing medium and sends a heat-producing medium paper non-passage area detected temperature signal to said temperature controller;

wherein said calorific value distribution adjuster selectively adjusts magnetic flux acting upon a predetermined area of said heat-producing medium and equalizes a calorific value distribution of said heat-producing medium based on a detected temperature signal from said second temperature sensor.

16. (Previously Presented) An image forming apparatus comprising:

an image heating apparatus comprising:

a rotatable heat-producing medium that produces heat by action of magnetic flux;

a magnetic flux generator that is positioned proximate to a first peripheral surface of said heat-producing medium and generates magnetic flux that acts upon said heat-producing medium;

a temperature controller that controls said magnetic flux generator and maintains a temperature of a surface of said heat-producing medium at a predetermined temperature; and

a calorific value distribution adjuster that selectively adjusts magnetic flux acting upon a predetermined area of said heat-producing medium and equalizes a calorific value distribution of said heat-producing medium;

wherein said calorific value distribution adjuster has a magnetic body opposite said magnetic flux generator;

a rotatable pressure member that applies pressure to said heat-producing medium;

a first pressure member temperature sensor that detects a temperature of a paper passage area of said pressure member and sends a pressure member paper passage area detected temperature signal to said temperature controller; and

a second pressure member temperature sensor that detects a temperature of a paper non-passage area of said pressure member and sends a pressure member paper non-passage area detected temperature signal to said temperature controller;

wherein said calorific value distribution adjuster selectively adjusts a magnetic flux acting upon a predetermined area of said heat-producing medium and equalizes a calorific value distribution of said heat-producing medium based on a detected temperature signal from said second pressure temperature sensor.

17. (Currently Amended) An image heating apparatus comprising:

a rotatable heat-producing element configured to produce heat by action of a magnetic flux;

a magnetic flux generator positioned proximate to a part of a first peripheral portion of said heat-producing element and configured to generate magnetic flux that acts upon said heat-producing element;

a rotatable magnetic flux adjuster that is positioned ~~proximate to~~ on a second peripheral portion of said heat-producing element, opposite the first peripheral portion, and that has a recording medium passage area magnetic flux adjustment unit ~~that adjusts the~~ that causes a magnitude of magnetic flux acting upon a recording medium passage area of said heat-producing element to vary depending on whether the recording medium passage area magnetic flux adjustment unit is positioned close to and facing the magnetic flux generator or is positioned far from the magnetic flux generator, and a recording medium non-passage area magnetic flux adjustment unit ~~having a~~ that has a different rotational phase from said recording medium passage area magnetic flux adjustment unit ~~[[,]] and that causes a magnitude of that adjusts a~~ magnetic flux acting on a recording medium non-passage area of said heat-producing medium ~~[[,]] to vary depending on whether the recording medium non-passage area magnetic flux adjustment unit is positioned close to and facing the magnetic flux adjustment unit or is positioned far from the magnetic flux generator,~~ ~~said rotatable magnetic flux adjuster continuously rotating throughout and that rotates during~~ a fixing operation for each sheet of recording ~~paper medium~~ and ~~periodically changes the magnitude of magnetic flux acting on said~~ heat producing element at different timings between the recording medium passage area and the recording medium non-passage area; and

a synchronization controller that periodically controls, for each sheet of recording paper medium, a timing of magnetic flux generation by said magnetic flux generator in synchronization with rotational phases of the magnetic flux adjustment units of said magnetic flux adjuster[.].

wherein a calorific value distribution across a width of the heat-producing element is adjusted by changing the timing of magnetic flux generation that is periodically controlled by the synchronization controller and by changing a spatial distribution of the magnetic flux acting upon the heat-producing element.

18. (Previously Presented) The image heating apparatus according to claim 17, wherein said recording medium passage area magnetic flux adjustment unit and said recording medium non-passage area magnetic flux adjustment unit comprise peripheral surfaces of a cylindrical body.

19. (Previously Presented) The image heating apparatus according to claim 17, further comprising at least one temperature sensor positioned to detect a temperature of a recording medium passage area of said heat-producing element, wherein said synchronization controller controls a timing of magnetic flux generation by said magnetic flux generator in synchronization with respective rotational phases of the magnetic flux adjustment units of said magnetic flux adjuster based on a temperature detected by said at least one temperature sensor.

20. (Previously Presented) The image heating apparatus according to claim 17, wherein a direction of rotation of said magnetic flux adjuster is opposite to a direction of rotation of said heat-producing element.

21. (Previously Presented) An image forming apparatus comprising:

the image heating apparatus according to claim 12;

a first temperature sensor that detects a temperature of a paper passage area of said heat-producing medium and sends a heat-producing medium paper passage area detected temperature signal to said temperature controller; and

a second temperature sensor that detects a temperature of a paper non-passage area of said heat-producing medium and sends a heat-producing medium paper non-passage area detected temperature signal to said temperature controller;

wherein said calorific value distribution adjuster selectively adjusts magnetic flux acting upon a predetermined area of said heat-producing medium and equalizes a calorific value distribution of said heat-producing medium based on a detected temperature signal from said second temperature sensor.

22. (Previously Presented) An image forming apparatus comprising:

the image heating apparatus according to claim 13;

a first temperature sensor that detects a temperature of a paper passage area of said heat-producing medium and sends a heat-producing medium paper passage area detected temperature signal to said temperature controller; and

a second temperature sensor that detects a temperature of a paper non-passage area of said heat-producing medium and sends a heat-producing medium paper non-passage area detected temperature signal to said temperature controller;

wherein said calorific value distribution adjuster selectively adjusts magnetic flux acting upon a predetermined area of said heat-producing medium and equalizes a calorific value

distribution of said heat-producing medium based on a detected temperature signal from said second temperature sensor.

23. (Previously Presented) An image forming apparatus comprising:

- the image heating apparatus according to claim 12;
- a rotatable pressure member that applies pressure to said heat-producing medium;
- a first pressure member temperature sensor that detects a temperature of a paper passage area of said pressure member and sends a pressure member paper passage area detected temperature signal to said temperature controller; and
- a second pressure member temperature sensor that detects a temperature of a paper non-passage area of said pressure member and sends a pressure member paper non-passage area detected temperature signal to said temperature controller;

wherein said calorific value distribution adjuster selectively adjusts a magnetic flux acting upon a predetermined area of said heat-producing medium and equalizes a calorific value distribution of said heat-producing medium based on a detected temperature signal from said second pressure temperature sensor.

24. (Previously Presented) An image forming apparatus comprising:

- the image heating apparatus according to claim 13;
- a rotatable pressure member that applies pressure to said heat-producing medium;
- a first pressure member temperature sensor that detects a temperature of a paper passage area of said pressure member and sends a pressure member paper passage area detected temperature signal to said temperature controller; and

a second pressure member temperature sensor that detects a temperature of a paper non-passage area of said pressure member and sends a pressure member paper non-passage area detected temperature signal to said temperature controller;

wherein said calorific value distribution adjuster selectively adjusts a magnetic flux acting upon a predetermined area of said heat-producing medium and equalizes a calorific value distribution of said heat-producing medium based on a detected temperature signal from said second pressure temperature sensor.

25. (Canceled)

26. (Previously Presented) The image heating apparatus according to claim 12, the rotatable heat producing medium comprising a ring-shaped or belt-shaped member.

27. (Previously Presented) The image heating apparatus according to claim 13, the rotatable heat producing medium comprising a ring-shaped or belt-shaped member.